

**REMARKS**

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-33 are now present in this application. Claims 1, 8, 19, 21, 22, and 33 are independent. Claims 8-21 have not been rejected nor have they been withdrawn. The Office Action just states that claims 8-21 are subject to restriction and/or election requirement. Applicant requests that the status of claims 8-21 be clarified in the next Office Action.

Amendments have been made to the Abstract of the Disclosure and the drawings. Reconsideration of this application, as amended, is respectfully requested.

**Premature/Improper Final Rejection**

For some unexplained reason, the Office Action Summary, Form PTO-326, states that this action is final. This is clearly improper because this Office Action is the first Office Action on the merits. While the restriction/election requirement was made final, no reasoning has been presented which would justify making the entire Office Action, including the rejections of the claims on their merits, final.

Applicants respectfully submit that the merits of this Office Action have not been made final and that this fact should be so stated in the next Office Action.

**Priority Claim**

Applicants thank the Examiner for acknowledging Applicants' claim for priority to four Korean patent Applications and the receipt of certified copies of those Korean Patent Applications.

**Allowable Subject Matter**

Applicants acknowledge with appreciation the allowance of claim 33 and the indication of allowable subject matter in claims 5-7. Claims 5 -7 have not been rewritten in independent form to make them allowable, however, because of Applicants' belief that claim 1, from which claims 5-7 depend, is allowable for reasons stated below.

**Drawing Objection**

The drawings are objected to under 37 CFR 1.83(a). The Office Action indicates that "the external Internet network and home network" must be shown or the feature(s) canceled from the claim.

Applicants respectfully submit that the "home network" is shown in Fig. 1, for example, and is described, for example, on page 12, lines 9-13 and on page 13, lines 15-21, as the network constructed among the household appliances using the power line.

Applicants have amended Fig. 1 to show the external Internet network without adding new matter. A marked up drawing sheet and a replacement drawing sheet are being submitted for the Examiner's consideration and approval.

**Abstract**

The Abstract is objected to because it is too long. Applicants have provided a new abstract to comply with MPEP §608.01 and request that this objection be withdrawn in view of the new abstract .

**Rejections under 35 USC §103**

Claims 1-4 stand rejected under 35 USC 103(a) as unpatentable over U.S. Patent 6,587,739 to Abrams et al. (Abrams) in view of EP 0782117 to Michael. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

During patent examination the PTO bears the initial burden of presenting a prima facie case of unpatentability. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the applicant is entitled to the patent. However, when a prima facie case is made, the burden shifts to the applicant to come forward with evidence and/or argument supporting patentability. Patentability vel non is then determined on the entirety of the record, by a preponderance of evidence and weight of argument, Id.

As is well settled, a rejection based on Section 103 must rest on a factual basis, with the facts being interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, the Examiner has the initial duty of supplying the factual basis for the rejection he advances. He may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis, See, In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

In rejecting claims under 35 USC 103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. See, In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in

Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. F-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note, In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). To establish prima facie obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the

patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

A showing of a suggestion, teaching, or motivation to combine the prior art references is an “essential evidentiary component of an obviousness holding.” C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not “evidence.” See In re Dembiczak, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999).

Applicants respectfully submit that the Office Action mischaracterizes what Abrams discloses. The Office Action asserts that the claimed “first network processor for performing remote communication with an external Internet network to receive remote control information therefrom” is met by Abrams where the first network processor is Abrams communications network PSTN, CATV 30 and that the external Internet network is element 35.

Abrams’ PSTN and CATV communications networks 30 are mentioned in Abrams as typical networks to which a house is connected in which its invention may be used. Element 35 is disclosed by Abrams to be “one or more communication lines” by which communications, such as telephone or cable televisions signals are provided to the house 10 in a known way – see col. 1, lines 22-24. Abrams also discloses at least two controllers 50 and 60 to control the

operation of and to receive and display information from other devices or appliances in the system. Controllers 50 and 60 may also be coupled to an external communications network, e.g., the Internet, world wide web, by telephone, DSL, or cable TV lines 35 or wirelessly. Lines 35 are not disclosed as the Internet as alleged in the office Action, but as lines that can connect controllers 50 and 60 to the Internet.

Controllers 50 and 60 are also disclosed as being connected to power line communications (PLC) appliances over internal power lines 27.

If a controller 50 or 60 is considered to be the recited first network processor, as alleged in the Office Action, then Abrams does not disclose a plurality of secondary network processors each connected between the output of the first network processor (e.g., 50 or 60) and the input of an associated one of the household appliances via a power line.

Abrams' controllers 50, 60 interact directly with the appliances instead of acting with power line connected secondary network processors, which Applicants cannot find in Abrams.

In fact, the Office Action admits that Abrams fails to disclose such power-line-connected secondary network processors.

In an attempt to remedy this deficiency, the Office Action turns to EP '117 to Michael Rostoker (referred to in the statement of the rejection as "Michael" and in the body of the rejection as "Rostoker", and referred to in this traversal of

the rejection as "EP '117").

The Office Action alleges that EP '117 discloses a plurality of second network processors each connected between the output of the first network processor.

However, EP '117 differs dramatically from Abrams. EP '117 is limited by its own disclosure to wireless local area networks, not power line connected systems as claimed.

The alleged reason that one of ordinary skill in the art would be motivated to modify Abrams power line system in view of EP '117's completely wireless system is "because doing so would control accurately a plurality of appliances to indicate when to turn on or turn off. Users acquire peace of mind when using this system because it let[s] the users [to] determine desired setting while away from home as taught by Rostoker (col. 2, lines 38-59)."

Applicants respectfully disagree with this assertion and submit that one of ordinary skill in the art would not be motivated to somehow modify Abrams to achieve the claimed invention in view of EP '117.

In the first place, none of EP '117's second network processors are connected between the output of the first network processor and the input of an associated household appliance via a power line, as recited, so even if it were proper to combine these references (which it is not for reasons discussed, *infra.*) the resulting reference combination of Abrams and EP '117 would not result in a



device that would meet or render obvious the claimed invention.

In the second place, Abrams disclosed a highly sophisticated invention that has no disclosed need for modification to work as intended. Accordingly, one of ordinary skill in the art would have no incentive to modify Abrams as suggested.

In the third place, modifying Abrams in view of EP '177 as suggested would completely do away with Abrams power line network and replace it with a wireless network, which would require dismantling Abrams' fundamentally sound power line network for no apparent reason, especially when there is no indication that Abrams is in need of improvement. Thus, Abrams and EP '117 actually teach away from being combined.

In the fourth place, Abrams discloses both a power line network and a wireless network in its system. This means that Abrams was aware of the benefits of each and still chose to retain its power line network features. This is another indication that one of ordinary skill in the art would not be motivated to modify Abrams to do away with an essential feature of its invention, i.e., the power line network.

In the fifth place, the Office Action never states exactly what parts of Abrams will be replaced by or modified by EP '117 by incorporating the teachings of EP '117. This is all left to speculation, and it is well settled, as stated in the case law cited above, that a rejection cannot properly be based on speculation.

In the sixth place, it is not clear, and the Office Action does not explain, how Abrams, modified in the unspecified manner suggested in the Office Action, will actually operate, especially, when Abrams' household power line network does not use a wireless transceiver, whereas the modifying reference (EP '177) needs a wireless transceiver to operate.

In the seventh place, Abrams system, without any modification, appears to give its users peace of mind because it lets them determine desired appliance settings while away from home – see col. 17, lines 19-29 for mixer speed settings and col. 19, lines 35-48 for heating element temperature settings, for example. This alleged “peace of mind” is not a reason to modify Abrams, because Abrams already provides this benefit. Similarly, Abrams discloses permitting a user to remotely turn on and turn off appliances. As a result, one of ordinary skill in the art would not have a desire to modify Abrams to provide the missing power line connected secondary network processors to provide different features that Abrams already has.

For at least these reasons, Applicants respectfully submit that the Office Action has not made out a prima facie case of proper motivation to modify Abrams to achieve the claimed invention.

Accordingly, the Office Action has not made out a prima facie case of obviousness of the claimed invention.

Reconsideration and withdrawal of this rejection of claims 1-4 is respectfully requested.

Claims 22-24, 26, 27, 29 and 30 stand rejected under 35 USC §103(a) as unpatentable over EP '117 in view of JP 02000196769A to Koudo. This rejection is respectfully traversed.

Claim 22 recites, among other features, (1) a household appliance microcomputer; (2) a network processor; and (3) a communication controller. EP '117 does not disclose these three separately recited features. EP '117 only discloses (2), which is item 12 in EP '117, and (3), which is item 16 in EP '117, but does not disclose a separate household appliance microcomputer. In EP '117, feature (3) accepts data from the electronics of a household unit 14, but does not disclose generating fault/repair information, as recited. Nor is EP '117's network processor 12 disclosed as calling a repair service and/or receiving fault/repair information.

The Office Action turns to Koudo for a teaching of calling a repair service. However, Koudo does not operate as alleged in the Office Action. In this regard, Applicants downloaded a computer generated English language translation of Koudo from the Japanese Patent Office, a copy of which is attached for the Examiner's consideration. That translation makes it clear that when an appliance fault occurs, it is reported to unit information management device 201,

which is part of the appliance, and the appliance management device 201 calls a maintenance/repair service through a telephone network 4.

If EP '177 were modified based on Koudo, the network processor would not call the repair service. Rather, the appliance processor would do the calling. Claim 22 recites a network processor to call a repair service, not an individual appliance unit information management unit.

Accordingly, a modification of EP '177 based on Koudo would not meet or render the claimed invention obvious.

Accordingly, the rejection has to be based on either unwarranted speculation or improper hindsight reconstruction of Applicants' claimed invention based solely on Applicants' disclosure.

Reconsideration and withdrawal of this rejection of claims 22-24, 26, 27, 29 and 30 are respectfully requested.

Claims 25, 28, 31 and 32 stand rejected under 35 USC §103(a) as unpatentable over EP '177 in view of Koudo and further in view of Abrams. This rejection is respectfully traversed.

Initially, Applicants respectfully submit that EP '177 and Koudo do not disclose, or render obvious, the features recited in claim 22, from which claim 25 depends, for reasons discussed above. Accordingly, even if it were obvious to modify EP '177 – Koudo in view of Abrams as suggested (which it is not, for

reason discussed, *infra.*), the resulting reference combination would not meet or render obvious the claimed invention because Abrams is not applied to provide the aforementioned deficiencies of EP '177 and Koudo, including a network processor to call a repair service.

The Office Action admits that the EP '177 – Koudo reference combination fails to disclose a power processor connected between communication processors to perform an on/off function to prevent a mismatch between a power line and a signal line.

To remedy this deficiency, the Office Action alleges that Abrams discloses a power processor 20 connected between communication processors for performing on/off function to prevent a mismatch between a power line and a signal line, with reference to Fig. 1.

Applicants have reviewed Abrams' Fig. 1 and its associated disclosure in the specification and find absolutely no mention of preventing a mismatch between a power line and a signal line, or of a power processor connected between communication processors to perform the non-mentioned mismatch prevention function.

So, even if Abrams were used to modify the EP '177 – Koudo reference combination, it would not result in, or render obvious, the claimed invention.

Furthermore, the reason presented to motivate the skilled worker to make the proposed modification, i.e., peace of mind, is nothing more than a broad,

general, speculative statement which does not provide the clear particular evidence needed to properly motivate a skilled worker to modify the base reference combination. Compare the "Dembiczak" case, cited above.

Additionally, the Office Action does not explain why one of ordinary skill in the art would want to modify the wireless system of EP '177 with wired system components of Abrams is not explained, nor is it clear.

Furthermore, the assertion that making the proposed modification would greatly enhance the appliance system performance is not supported by objective factual evidence and, therefore, is improper.

Reconsideration and withdrawal of this rejection of claims 25, 28, 31 and 32 are respectfully requested.

#### **Additional Cited References**

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but have merely been cited to show the state of the art, no comment need be made with respect thereto.

#### **Conclusion**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be

withdrawn. Applicants also respectfully request that the status of claims 8-21 be clarified. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert J. Webster, Registration No. 46,472, at (703) 205-8000, in the Washington, D.C. area.

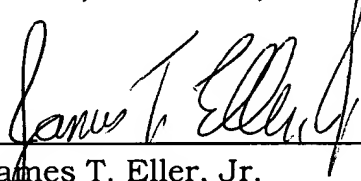
Pursuant to the provisions of 37 CFR 1.17 and 1.136(a), Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application. The required fee of \$110.00 is attached hereto.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By:

  
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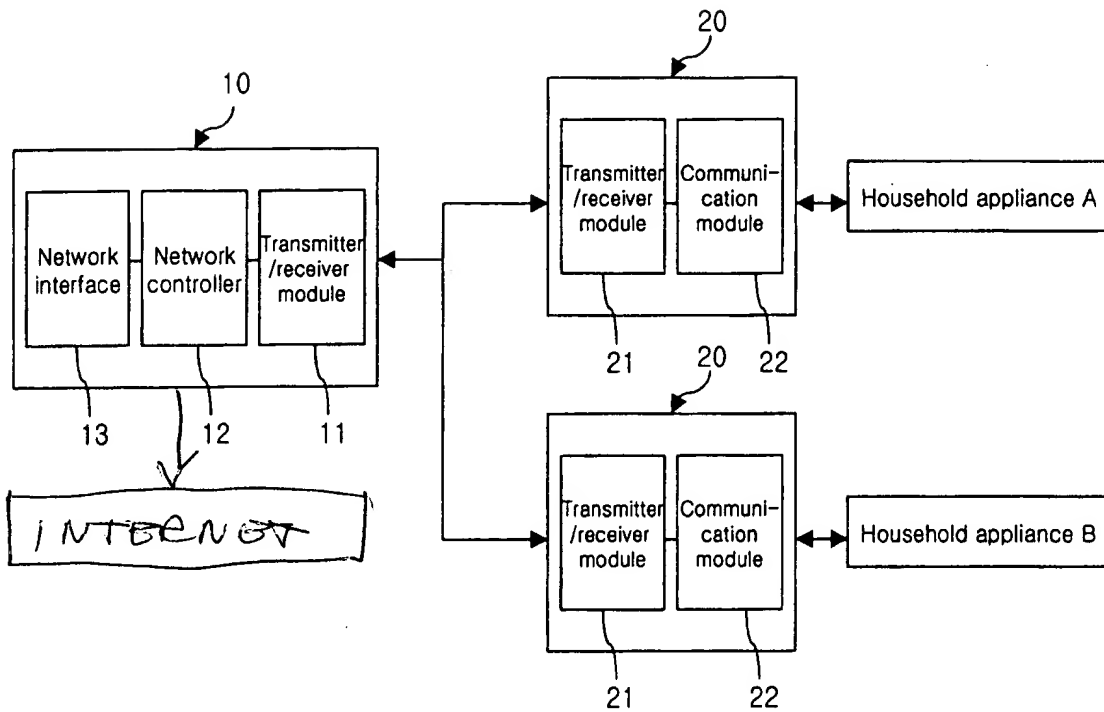
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Attachment: Replacement Drawing Sheet  
Annotated Drawing Sheet  
Abstract of the Disclosure  
JPO Computer Translation of Koudo





MARKED-UP  
- Replacement Sheet





# PATENT ABSTRACTS OF JAPAN

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KUROSAWA HARUHIRO

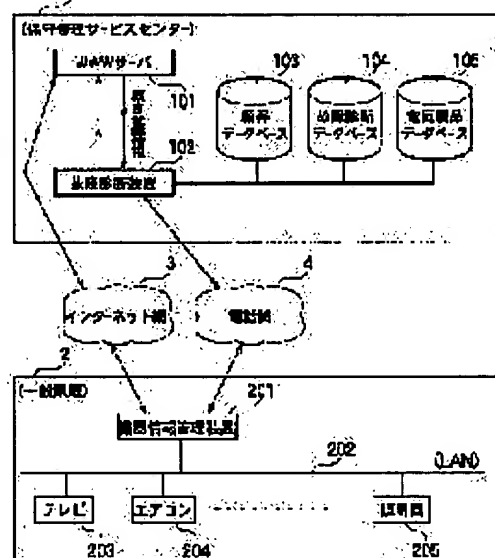
## (54) HOUSEHOLD ELECTRICAL APPLIANCE MAINTENANCE AND REPAIR SERVICE SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To speedily and appropriately cope with the fault of a household electric appliance whose function is made high.

SOLUTION: The user of a household electrical appliance accesses a home page which the WWW server 101 of a maintenance/repair service center 1 opens to WWW3, registers a necessary item and contracts with it for maintenance. When the maintenance contact is realized, a contractor is registered in the customer data base 103 of the maintenance/repair service center. Self-fault diagnosis means incorporated in household electric appliances 203, 204,... in a house 2 monitor the operation states of the household electrical appliances.

When a part where a fault occurs exists, it is reported to a unit information management device 201 and the unit information management device receiving it automatically calls the maintenance/repair service center through a telephone network 4 and informs the fault diagnosis device of fault information. When the fault diagnosis device receives fault information, the maintenance/repair service center retrieves a fault diagnosis data base and decides fault corresponding information such as a fault, a repair content required for the cause and exchange components.



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**LEGAL STATUS**

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[Date of final disposal for application]

[Patent number]

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CLAIMS

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[Claim(s)]

[Claim 1] It is the home-electronics maintenance repair service system which connects a maintenance repair service center and every house by the telephone network and WWW, and changes. Said maintenance repair service center With the WWW server which opens the homepage for maintenance repair-service registration to said WWW The fault read-out unit which carries out troubleshooting based on the self-troubleshooting information sent from said every house, and presents required repair technique information, It has the customer database which manages customer information, and the troubleshooting database which registers the information used for troubleshooting processing of said fault read-out unit. Every house The home-electronics maintenance repair service system which collects the self-troubleshooting information on the self-troubleshooting means built into each home electronics, and this self-troubleshooting means, equips said maintenance service center with the device information management equipment connected automatically, and grows into it through said telephone network at the time of failure generating.

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[Translation done.]

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the home-electronics maintenance repair service system which performs troubleshooting required for maintenance correspondence automatically in a remote maintenance repair service center, when failure occurs in common domestic home electronics.

[0002]

[Description of the Prior Art] If a failure report is received from a user when failure occurs for these electric products, dispatch to the home of maintenance service member report-origin, and it is made to correspond to failure correction, or he carries in depending on the class of product, and is trying to correspond by repair, although many electric products, such as television, a telephone, an air-conditioner, and an automatic washing machine, have spread through current and each home.

[0003] And when dispatching a maintenance service member to the home which failure generated, the person in charge who received the repair request, or the maintenance service member to which correspondence was directed checks a failure situation by telephone to the request Lord beforehand, presumes a near cause of fault, judges the repair technique and the required substitute part corresponding to it, and he is trying to go to the request Lord's address.

[0004] Moreover, a troubleshooting system may be used in order for a maintenance service member to judge necessity of a cause of fault, required repair technique, and a substitute part.

[0005]

[Problem(s) to be Solved by the Invention] however, in such a conventional system corresponding to failure Even if failure occurs especially in home electronics, for example "Television stopped reflecting." Only "the sound's having stopped coming out" and failure information with rough extent of "The washing machine stopped working" are acquired. The detailed information into which circuit part included in home electronics abnormalities occurred is not acquired. Therefore, a substitute part must be arranged with failure correspondence so that it can respond to them supposing some causes of fault and a locating fault, and it must go to the request Lord's address. For coming being able to do, product knowledge and experience broad to a maintenance service member side are required for such flexible failure correspondence. By the time the maintenance service member became one portion so much, time amount was taken, the number of a maintenance service member was not arranged, but as a result, failure correspondence took time amount and there was a trouble which applies inconvenience to a customer.

[0006] Furthermore, since the burden of a maintenance service member becomes large making repair of two or more sorts of each home electronics which had advanced features by one person's maintenance service member take charge of, if it can do, it is desirable, although each home electronics have advanced features even now and it is expected future further with altitude that complicated home electronics appear to specialize the repair taken charge of for every maintenance service member.

[0007] In the remote maintenance repair service center which this invention was made in view of such a Prior-art-technical problem, and was tied with many homes, WWW, and telephone networks When

failure occurs in home electronics with a certain home Troubleshooting, such as specification of specification of a cause, required repair technique, and the substitute part needed, is performed to the failure. While pinpointing the address of the customer whom failure generated, it aims at offering the home-electronics maintenance repair service system which can also propose required repair technique to a maintenance service member.

[0008]

[Means for Solving the Problem] Invention of claim 1 is a home-electronics maintenance repair service system which connects a maintenance repair service center and every house by the telephone network and WWW, and changes. With the WWW server with which said maintenance repair service center opens the homepage for maintenance repair-service registration to said WWW The fault read-out unit which carries out troubleshooting based on the self-troubleshooting information sent from said every house, and presents required repair technique information, A self-troubleshooting means by which had the customer database which manages customer information, and the troubleshooting database which registers the information used for troubleshooting processing of said fault read-out unit, and every house was included in each home electronics, The self-troubleshooting information on this self-troubleshooting means is collected, and it has device information management equipment automatically connected to said maintenance service center through said telephone network at the time of failure generating.

[0009] First, the WWW server of a maintenance repair service center accesses the homepage opened to WWW, registers a required matter, and the user of home electronics who wants to make the maintenance contract of home electronics makes a maintenance contract with the maintenance repair service system of invention of claim 1. If this maintenance contract is concluded in normal, that contractor will be registered into the customer database of a maintenance repair service center as a contractor of normal.

[0010] And although it will notify to device information management equipment if the self-troubleshooting means built into each home electronics in every house supervises the operating state of each part of home electronics and has a failure generating part, as for the device information management equipment which received this, failure information is automatically notified for a maintenance repair service center to a call and its fault read-out unit through a telephone network.

[0011] In a maintenance repair service center, if a fault read-out unit receives failure information, it will judge whether you are the customer who searched the customer database to this and did the maintenance contract to normal. And if registered as a contractor of normal, reception and a troubleshooting database will be searched for failure information to a forward type, and information corresponding to failure, such as a cause of fault, the contents of repair required for it, and a substitute part, will be determined.

[0012] Then, the staff of a maintenance repair service center looks at this customer information, and that address is checked, and the suitable maintenance service member which should look at and dispatch the information corresponding to failure is determined, and it is made in charge of failure correspondence.

[0013]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained in full detail based on drawing. Drawing 1 shows the system configuration of the gestalt of one operation of this invention. The home-electronics maintenance repair service system of this invention consists of WWW3 and the telephone networks 4 to which between the maintenance repair service center 1, the ordinary homes 2, and these are connected.

[0014] And in the maintenance repair service center 1, the WWW server 101, the fault read-out unit 102, the customer database 103, the troubleshooting database 104, and the electric product database 105 had and shine.

[0015] The ordinary homes 2 are equipped with the home electronics of the television 203 used as the administration object connected to device information management equipment 201, domestic [ LAN / 202 ], and this LAN202, an air-conditioner 204, and illuminator 205 grade.

[0016] each smallness circuit 1-n which constitutes this circuit 20 with this circuit 20 for making work of that product original perform to the home electronics of each used as the administration object of

television 203, an air-conditioner 204, and illuminator 205 grade as shown in drawing 2 -- the troubleshooting circuit 21 which supervises each operating state, and the transceiver circuit 22 which transmits the troubleshooting information on this troubleshooting circuit 21 to device information management equipment 201 through LAN202 are incorporated.

[0017] If the troubleshooting circuit 21 is usually within the limits as compared with a reference value about the measured value of each diagnosing point of 1 in this circuit 20 - n and it is unusual in measured value, it will add NG information to the measured value, and will transmit it to the transceiver circuit 22.

[0018] The transceiver circuit 22 adds device-dependent information (a manufacture name, form, date of manufacture) to data from the troubleshooting circuit 21, and transmits it to device information management equipment 201 by LAN202 according to a fixed transmission format. This transmission is performed at the time of every scheduled time of a certain and malfunction detection.

[0019] The WWW server 101 of the maintenance repair service center 1 makes the contract made by exhibiting the homepage about maintenance repair-service information on WWW3, making the customer who applies for a maintenance repair contract access, and making required information write in according to the application format currently prepared for the homepage. And the contents of a contract are registered into a customer database 103. Therefore, the information about the customer who made the maintenance repair-service contract, a name, a zip code, the address, the telephone number, a registration date, the information about the electric article it is unrefined for the candidate for a contract and the settlement-of-accounts approach of costs, and the payment account number are registered into the customer database 103.

[0020] The information which the troubleshooting database 104 needs for troubleshooting of each electric product of varieties, for example, the expert knowledge information on troubleshooting, is registered.

[0021] As for the electric product database 105, the model of each electric product of other types, form, a manufacture period, the operating-characteristic data of each part, and substitute part information are registered.

[0022] As shown in drawing 3, the fault read-out unit 102 by the side of the maintenance repair service center 1 can display the registration customer list 107 on the fault read-out unit screen 106. the customer information displayed on this registration customer list 107 is registered into the customer database 103, and contains each customer's name, a zip code, the address, the telephone number (telephone number used in case the device information management equipment 201 by the side of that customer transmits information to a pin center, large 1 side through a telephone network 4), and a registration date.

[0023] Moreover, as shown in drawing 4, a fault read-out unit 102 can also display the individual customer information 108 on the fault read-out unit screen 106. the status data in which normal/abnormalities of those operating state of each registration electrical-and-electric-equipment product are shown with the model of electric product registered as a candidate for maintenance repair for every customer with the customer information listed by the registration customer list 107 and form are included in this individual customer information 108. It is shown that abnormalities generated the electric product with which the round mark is written in the status column by drawing 4.

[0024] As furthermore shown in drawing 5, a fault read-out unit 102 can display the troubleshooting information 109 on the fault read-out unit screen 106. They are displayed on this troubleshooting information 109 in a list format including the measured value for every point of measurement of this circuit, a reference value, and status data with the information on an electric product (a model name, a manufacturer, form, and the date of manufacture are included). Here, the point of measurement when the round mark is written in the status column shows that the measured value is unusual.

[0025] And the measured-value data of that time series are linked to each point of measurement of this troubleshooting information 109, and by applying cursor to a point-of-measurement part, and clicking with the pointing device of a mouse and others, as shown in drawing 6, the time series graph of point of measurement is indicated by expansion.

[0026] Next, actuation of the maintenance repair service system of the above-mentioned configuration is

explained.

[0027] <Ordinary homes> It connects with device information management equipment 201 by LAN202 about the electric product which is going to receive failure correction service in a domestic electric product.

[0028] in addition, for the electric product linked to LAN202 It adds to this circuit 20 for achieving the function of electric concerned product original beforehand, as shown in drawing 2 . If it is in a normal range as compared with a reference value, the measured value of the various diagnosing points 1 in it - n only each measured value And if it is outside a normal range, the troubleshooting circuit 21 which adds abnormal occurrence information (NG information) with measured value, and the transceiver circuit 22 which transmits the troubleshooting information which this troubleshooting circuit 21 generates to device information management equipment 201 through LAN202 are built in. Or it is added by post-installation.

[0029] each electric products 203, 204, and 205 and the troubleshooting circuit 21 of -- diagnosing point 1-n in this circuit 20 -- if it is in a normal range about each measured value as compared with a reference value and is each measured value and outside a normal range, with measured value, abnormal occurrence information (NG information) will be added and the transceiver circuit 22 will be passed.

[0030] The transceiver circuit 22 adds the information on an electric product proper, a manufacture name, a product name, form, and manufacture years to troubleshooting information from the troubleshooting circuit 21, and transmits them to device information management equipment 201 through LAN202 according to a fixed transmission format. This transmission is performed when every scheduled time and the troubleshooting information to which NG information was added are received.

[0031] Device information management equipment 201 receives each electric products 203, 204, and 205 and the troubleshooting information sent through LAN202 from --, stores only a certain time amount range, and whenever the time amount passes, it is overwritten using new information.

[0032] And if the troubleshooting information on all electric products is collected, auto dialing is immediately carried out to the maintenance repair service center 1 and the telephone line is connected when the troubleshooting information in which NG information is included is received, a contractor's customer information, i.e., a name, a zip code, the address, and the telephone number will be added to troubleshooting information, and it will transmit to it. In addition, only the configuration which transmits an ID number for discernment of a customer may be used here. And in that case, a customer database 103 will be searched with a pin center, large 1 side, and customer information will be deduced.

[0033] Device information management equipment 201 transmits automatically the newest troubleshooting data about all electric products, for example to the fixed target of every month in the maintenance repair service center 1 again, even when there is no failure generating.

[0034] In a <maintenance repair service center> maintenance repair service center, the WWW server 101 exhibits the homepage which advertises troubleshooting service to a customer on WWW3, and performs registration of an application of the customer who is going to receive troubleshooting service in the homepage, and registration of customer information. Issue of an ID number and the descriptive procedure of a password are also performed at the time of registration of this maintenance repair contract. A name, a zip code, the address, and the telephone number (telephone number of the telephone using this service) are included in a customer's registration information. Moreover, the information about the electric product set as the object of maintenance service, a model, form, and manufacture years are also registered.

[0035] If the registration procedure of this customer information is completed, registration information will be registered into a fault read-out unit 102 at delivery and a customer database 103.

[0036] Furthermore, if customer information is registered, the diagnostic information of a customer's electric product can be carried to the WWW server's 101 homepage, and the customer itself can see the contents of registration on a homepage by the input of an ID number and a password.

[0037] The application software for troubleshooting is registered into a fault read-out unit 102, and troubleshooting is performed by searching a database to it.

[0038] There are the customer database 103 which registers customer information, the troubleshooting



database 104 which stores the diagnostic information of the electric product transmitted by the customer, and the electric product database 105 which stores the acceptance-criteria value for every product form of each electric product manufacturer and a renewal parts list as database.

[0039] A fault read-out unit 102 performs the next processing. If a telephone call is got from a customer, it judges whether it is the thing of the customer by whom the telephone number was registered, if it is a non-registered thing, a receptionist will be refused, if it is the registered telephone number, the arrival will be confirmed and the troubleshooting information on the electric product sent will be received.

[0040] When the information (NG information) which shows failure generating is included in the received troubleshooting information, the customer information 108 as received all the diagnostic datas of the electric product with which the NG information is included, and stored the data in the troubleshooting database 104 and shown in drawing 4 is displayed on Screen 106.

[0041] If NG information is not included, it carries out, because the data with which the troubleshooting database 104 corresponds are updated. In addition, if it becomes clear that the new part is contained in an electric product name, additional creation will be carried out at the troubleshooting database 104.

[0042] Although the customer information 108 as first shown in drawing 4 is displayed on Screen 106 when NG information is included in the received troubleshooting information, a pin center, large staff specifies the electric product with which NG mark is put on the status column, and performs more detailed troubleshooting by what the run command of still more detailed troubleshooting is given for (the electric product column which corresponds with a pointing device is clicked).

[0043] In this detailed troubleshooting, all the diagnostic datas that read the reference value of each point of measurement of the electric product which searches the electric product database 105 and corresponds, and were stored in the troubleshooting database 104 are searched, the measured value of each point of measurement is read, and the point of measurement which shows outlying observation is specified. It develops on Screen 106 as troubleshooting information 109 as shown in drawing 5, and the result of this detailed troubleshooting puts NG mark on that status column about the point of measurement which shows outlying observation.

[0044] Moreover, by what the point of measurement when NG mark was attached is specified, and the display instruction of time series data is given for (here, the point of measurement which corresponds with a pointing device is clicked), when the still more detailed information for troubleshooting is required, a pin center, large staff displays the time series graph 110 of the measured value in the point generating [ failure ], as shown in drawing 6.

[0045] In this way, if the fault point is studied by troubleshooting, based on the acquired failure information, the information on a cause of fault, the repair approach, a required substitute part, etc. will be pulled out using the information on the troubleshooting database 104 and the electric product database 105. The expert system of troubleshooting is used for this.

[0046] in this way, in the maintenance repair service system of the gestalt of this operation When failure occurs in home electronics with a certain home in the remote maintenance repair service center 1 tied with many homes 2, WWW3, and telephone networks 4 Troubleshooting, such as specification of specification of a cause, the required repair approach, and the substitute part needed, is performed to the failure, while pinpointing the address of the customer whom failure generated, required repair technique can also be proposed to a maintenance service member, and failure correspondence can perform it quickly and appropriately.

[0047]

[Effect of the Invention] When failure occurs in home electronics with a certain home as mentioned above according to invention of claim 1 In case a failure correction request is received like before, even if it does not carry out finding out about it and guessing the symptom of the failure to a user outside the gate chiefly, it sets to a maintenance repair service center side. With detection of failure generating Troubleshooting, such as specification of specification of a cause, the required repair approach, and the substitute part needed, is performed to the failure, while pinpointing the address of the customer whom failure generated, required repair technique can also be proposed to a maintenance service member, and it is made quick, and suitable failure correspondence can be performed.

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[Translation done.]

